Black Bass Observations From the Field

Largemouth bass in the upper Wicomico River: What are the limiting factors?

The Problem

The largemouth bass fisheries for some eastern shore rivers have declined possibly because of declining habitat suitability. In the upper Wicomico River, largemouth bass are limited by salinity and lack of spawning habitats. They are additionally challenged by high levels of nitrogen and phosphorus, and by a developing watershed. At one time, though, the largemouth bass fishery of the upper river was exceptional.

The Questions

Is the fishery for largemouth bass in the upper Wicomico River in trouble because of poor water quality or other factors?

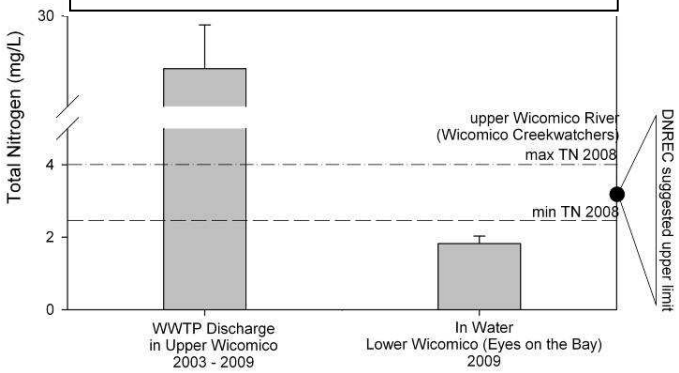
Methods

- Investigate nutrient amounts in upper Wicomico River by researching 2008 water quality data measured by the Wicomico River Creekwatchers (Chesapeake Bay Foundation, cbfl.org/hotc).
- Investigate the amount of nutrients and other chemicals that are discharged from the Salisbury Wastewater Treatment Plant (WWTP).
- Investigate problems and possible solutions for management of Schumaker Pond and to a lesser extent Johnsons Pond.

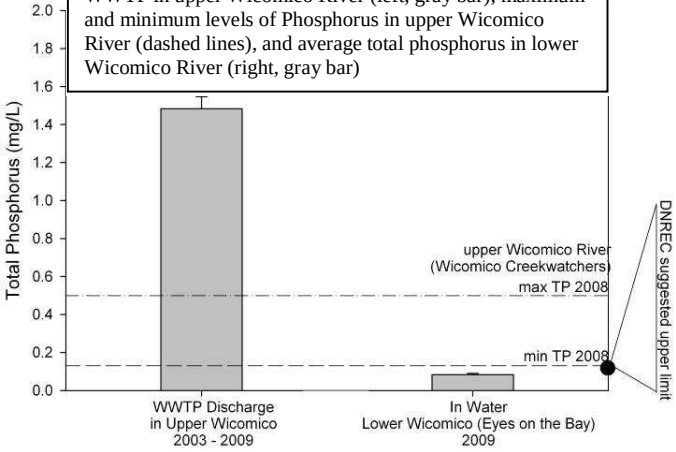
Results

1) Total Nitrogen levels in upper Wicomico River are sometimes above suggested standards;
2) Total Phosphorus levels in upper Wicomico River are higher than suggested standards;
3) Downstream levels of Nitrogen and Phosphorus are better because of dilution of upstream pollution;
4) The WWTP of Salisbury was required to limit its discharge of Nitrogen in 2008;
5) The WWTP is currently undergoing upgrades that will be completed by 2015;
6) The upgrades will reduce nitrogen and phosphorus discharge levels to levels required by MDE and EPA;
7) The money spent by the City of Salisbury to pay WWTP violations of excessive Phosphorus and Nitrogen will be used to improve infrastructure in order to meet nutrient reduction targets;
8) The City is developing a Stormwater utility which will be tasked with retrofitting and requiring new development to meet standards for future TMDLs.

Average Total Nitrogen in wastewater discharge from WWTP in upper Wicomico River (left, gray bar), maximum and minimum levels of Nitrogen in upper Wicomico River (dashed lines), and average total nitrogen in lower Wicomico River (right, gray bar)



Average Total Phosphorus in wastewater discharge from WWTP in upper Wicomico River (left, gray bar), maximum and minimum levels of Phosphorus in upper Wicomico River (dashed lines), and average total phosphorus in lower Wicomico River (right, gray bar)



Discussion

Fertilized lawns, goose and pet feces, and wastewater contribute to high levels of nitrogen and phosphorus. High nutrient levels can lower the suitability of habitat for top predators, like largemouth bass. Top predators are important for promoting healthy ecosystems and are sources of recreation for the local public. Salisbury's ponds may be an important contributor of young bass. Stabilizing pond populations may prove beneficial. As conditions improve in response to better wastewater and storm water management, MDDNR Inland Fisheries will stock the upper Wicomico River with largemouth bass to help support the fishery.

Acknowledgements: Please buy a fishing license – proceeds pay for the Tidal Bass Program and help protect bass fishing and populations. **For questions or comments**: Joseph W. Love, Ph.D., Tidal Bass Manager, 580 Taylor Avenue, B-2, Annapolis, MD, 21401. Phone: (410) 260-8257. E-mail: jlove@dnr.state.md.us. Still Fishing? Visit our website for more info: www.dnr.state.md.us/fisheries/tidalbass.